Virology

Volume 189 1992

EDITORS

W. K. Joklik, Editor-In-Chief M. J. Buchmeier R. Haselkorn M. M.-C. Lai B. Moss J. R. Nevins P. Palukaitis J. K. Rose B. Sugden M. D. Summers P. K. Vogt

ASSOCIATE EDITORS

P. Ahlquist	J. J. Dunn	E. Hunter	E. Moran	M. L. Privalsky	D. H. Spector
R. Ahmed .	E. Ehrenfeld	T. Hunter	T. J. Morris	V. Racaniello	J. Stanley
G. Air	J. H. Elder	A. O. Jackson	T. G. Morrison	R. F. Ramig	M. F. Stinski
A. K. Banerjee	S. Emerson	J. E. Johnson	R. W. Moyer	L. Ratner	V. Stollar
C. Basilico	L. W. Enquist	R. E. Johnston	S. A. Moyer	H. R. Revel	S. E. Straus
T. Ben-Porat Kaplan	M. Feiss	J. D. Keene	F. A. Murphy	C. M. Rice	J. H. Strauss
K. I. Berns	B. N. Fields	E. Kieff	R. Nusse	H. L. Robinson	D. F. Summers
G. W. Blissard	J. B. Flanegan	D. F. Klessig	D. J. O'Callaghan	G. F. Rohrmann	J. W. Summers
T. J. Braciale	S. J. Flint	D. M. Knipe	P. Offit	B. Roizman	M. M. Susskind
P. Brown	W. R. Folk	HJ. Kung	R. A. Owens	C. Rosen	R. I. Swanstrom
G. Bruening	D. A. Galloway	L. A. Laimins	P. Palese	L. B. Rothman-Denes	R. H. Symons
E. Carstens	E. P. Geiduschek	R. A. Lamb	P. Palukaitis	C. E. Samuel	P. Tattersall
B. J. Carter	W. Gibson	J. S. Lipsick	E. Paoletti	P. A. Schaffer	M. J. Tevethia
L. T. Chow	R. M. Goodman	D. M. Livingston	J. T. Parsons	B. S. Schaffhausen	S. S. Tevethia
J. M. Coffin	R. Goorha	G. P. Lomonossoff	C. D. Pauza	R. Schlegel	D. A. Thorley-Lawson
A. M. Colberg-Poley	D. E. Griffin	P. A. Luciw	G. N. Pavlakis	C. Schmaljohn	C. P. Van Beveren
R. W. Compans	B. H. Hahn	R. B. Luftig	M. E. Peeples	J. E. Schoelz	J. L. Van Etten
R. C. Condit	E. Harlow	J. Majors	S. Perlman	M. Schubert	I. M. Verma
J. A. Cooper	M. Hayman	P. L. Marion	S. Pestka	C. Seeger	L. E. Volkman
S. Dales	P. Hearing	W. Mason	R. F. Pettersson	B. M. Sefton	E. K. Wagner
J. M. Dalrymple	M. S. Horwitz	G. McFadden	D. J. Pickup	B. L. Semler	R. L. Ward
D. DiMaio	M. M. Howe	J. E. Mertz	P. M. Pitha-Rowe	K. V. Shah	R. G. Webster
P. C. Doherty	S. H. Hughes	E. S. Mocarski, Jr.	R. D. Possee	P. R. Shank	W. S. M. Wold
W. G. Dougherty	R. Hull	P. Model	L. E. Post	J. Sodroski	F. Wong-Staal



ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers San Diego New York Boston London Sydney Tokyo Toronto Copyright © 1992 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1992 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0042-6822/92 \$5.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.



Contents of Volume 189

Number 1, July 1992

Contents

Nitin K. Saksena, Michael P. Sherman, Richard Yanagihara, Dipak K. Dube, and Bernard J. Poiesz	1
Elizabeth A. Hewat, Timothy F. Booth, Peter T. Loudon, and Polly Roy	10
Alan R. Davidson and Marvin Gold	21
Tae-Jin Choi, Shigeru Kuwata, Eugene V. Koonin, Louis A. Heaton, and Andrew O. Jackson	31
D. Gilmer, S. Bouzoubaa, A. Hehn, H. Guilley, K. Richards, and G. Jonard	40
Johan Neyts, Robert Snoeck, Dominique Schols, Jan Balzarini, Jeffrey D. Esko, Ann Van Schepdael, and Erik De Clercq	48
Karen K. Gerlach and Robert H. Schloemer	59
Karen L. Hutchinson, Ronald C. Herman, and D. Margaret Hunt	67
Masami Matsuzaki, Kanetsu Sugawara, Kazu- hito Adachi, Seiji Hongo, Hidekazu Nishi- mura, Fumio Kitame, and Kiyoto Nakamura	79
Kaisong Fu and Ralph S. Baric	88
Tom F. W. Wolfs, Gabriël Zwart, Margreet Bakker, and Jaap Goudsmit	103
D. J. Dumont and P. E. Branton	111
Yasuo Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Ta- kashi Suzuki, Toshiyuki Kobayashi, Yoshin- obu Kimura, Akira Yamada, Kanetsu Suga- wara, Hidekazu Nishimura, Fumio Kitame, Kiyoto Nakamura, Eiki Deya, Makoto Kiso,	121
	Yanagihara, Dipak K. Dube, and Bernard J. Poiesz Elizabeth A. Hewat, Timothy F. Booth, Peter T. Loudon, and Polly Roy Alan R. Davidson and Marvin Gold Tae-Jin Choi, Shigeru Kuwata, Eugene V. Koonin, Louis A. Heaton, and Andrew O. Jackson D. Gilmer, S. Bouzoubaa, A. Hehn, H. Guilley, K. Richards, and G. Jonard Johan Neyts, Robert Snoeck, Dominique Schols, Jan Balzarini, Jeffrey D. Esko, Ann Van Schepdael, and Erik De Clercq Karen K. Gerlach and Robert H. Schloemer Karen L. Hutchinson, Ronald C. Herman, and D. Margaret Hunt Masami Matsuzaki, Kanetsu Sugawara, Kazuhito Adachi, Seiji Hongo, Hidekazu Nishimura, Fumio Kitame, and Kiyoto Nakamura Kaisong Fu and Ralph S. Baric Tom F. W. Wolfs, Gabriël Zwart, Margreet Bakker, and Jaap Goudsmit D. J. Dumont and P. E. Branton Yasuo Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Takashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Takashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Takashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Takashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Takashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Watanabe, Yoshihisa Toda, Xu Guiyun, Takashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Kashi Suzuki, Toru Nakao, Takeshi Ito, Norifumi Kashi Suzuki, Toshiyuki Kobayashi, Yoshinobu Kimura, Akira Yamada, Kanetsu Sugawara, Hidekazu Nishimura, Fumio Kitame,

Human Papillomavirus Type 16 (HPV 16) Gene Expression and DNA Replication in Cervical Neoplasia: Analysis by in Situ Hybridization	Matthias Dürst, Dagmar Glitz, Achim Schneider, and Harald Zur Hausen	132
Rat Cellular Mutants for Expression of mRNA from the Long Terminal Repeat of Murine Retrovirus	Masami Isaka, Hirokazu Inoue, Toshio Tsukiyama, Otsura Niwa, and Akira Hakura	141
Pathways of Viral Gene Expression during Acute Neuronal Infection with HSV-1	Todd P. Margolis, Farhad Sedarati, Anthony T. Dobson, Lawrence T. Feldman, and Jack G. Stevens	150
Functional Analysis of Biologically Distinct Genetic Variants of Simian Immunodeficiency Virus Isolated from a Mandrill	Hiroyuki Sakai, Jun-Ichi Sakuragi, Sayuri Sakuragi, Riri Shibata, and Akio Adachi	161
Retained in Vitro Infectivity and Cytopathogenicity of HIV-1 Despite Truncation of the C-Terminal Tail of the env Gene Product	Thomas Wilk, Tanya Pfeiffer, and Valerie Bosch	167
Lack of Direct Correlation between p220 Cleavage and the Shut-Off of Host Translation after Poliovirus Infection	Luis Pérez and Luis Carrasco	178
Altered Expression of Adenovirus 12 DNA-Binding Protein but Not DNA Polymerase during Abortive Infection of Hamster Cells	Lynne A. Lucher, Benjawan Khuntirat, Jiansheng Zhao, and Peter C. Angeletti	187
Herpes Simplex Virus Immediate Early Gene Expression in the Absence of Transinduction by Vmw65 Varies during the Cell Cycle	Jasmine I. Daksis and Chris M. Preston	196
Syncytium Formation Is Induced in the Murine Neuroblas- toma Cell Cultures Which Produce Pathogenic Type G Proteins of the Rabies Virus	Kinjiro Morimoto, Ya-Jin Ni, and Akihiko Kawai	203
Mouse Hepatitis Virus Nucleocapsid Protein-Specific Cytotoxic T Lymphocytes Are L ^d Restricted and Specific for the Carboxy Terminus	Stephen A. Stohlman, Shigeru Kyuwa, Michael Cohen, Cornelia Bergmann, John M. Polo, Jason Yeh, Richard Anthony, and James G. Keck	217
Sequence Upstream of the 24K Protease Enhances Cleavage of the Cowpea Mosaic Virus B RNA-Encoded Polyprotein at the Junction between the 24K and 87K Proteins	Johannes T. Dessens and George P. Lomonossoff	225
Analysis of Genetic Heterogeneity Within the Type Strain of Satellite Tobacco Mosaic Virus Reveals Several Vari- ants and a Strong Bias for G to A Substitution Muta- tions	Gael Kurath, M. E. Christine Rey, and J. Allan Dodds	233
Spliced RNA of Woodchuck Hepatitis Virus	C. Walter Ogston and Dolores G. Razman	245
Targeted Gene Disruption in Epstein-Barr Virus	May-Ann Lee, Ok-Jin Kim, and John L. Yates	253
Flow Cytometric Analysis of African Swine Fever Virus-Induced Plasma Membrane Proteins and Their Humoral	Carlos Alcaraz, Alberto Alvarez, and José M. Escribano	266

Intracellular Processing of the N-Terminal ORF 1a Proteins of the Coronavirus MHV-A59 Requires Multiple Proteolytic Events	Mark R. Denison, Philip W. Zoltick, Scott A. Hughes, Bernadette Giangreco, Ann L. Olson, Stanley Perlman, Julian L. Leibowitz, and Susan R. Weiss	274
Analysis of the Bovine Viral Diarrhea Virus Genome for Possible Cellular Insertions	Fengxia Qi, Julia F. Ridpath, Terry Lewis, Steve R. Bolin, and Eugene S. Berry	285
The Interaction of SV40 Large T Antigen with Unspecific Double-Stranded DNA: An Electron Microscopic Study	Rainer Wessel, Uwe Ramsperger, Hans Stahl, and Rolf Knippers	293
The DNA Sequence of Equine Herpesvirus-1	Elizabeth A. R. Telford, Moira S. Watson, Kathryn McBride, and Andrew J. Davison	304
Short Commu	nications	
The Pathogenicity of Ab4p, the Sequenced Strain of Equine Herpesvirus-1, in Specific Pathogen-Free Foals	J. S. Gibson, J. D. Slater, and H. J. Field	317
The Amino Acid Sequence Determination of a Granulin and Polyhedrin from Two Baculoviruses Infecting Agrotis segetum	E. A. Kozlov, N. V. Rodnin, T. L. Levitina, N. M. Gusak, N. F. Radomskij, and L. J. Palchi- kovskaya	320
Maturation of Hantaan Virus Glycoproteins G1 and G2	Dragana Antic, Kathryn E. Wright, and C. Yong Kang	324
Inhibition of Bovine Papillomavirus Plasmid DNA Replication by Adeno-Associated Virus	Paul L. Hermonat	329
Lytic Infection of Primary Rhesus Kidney Cells by Simian Virus 40	Andreas von der Weth and Wolfgang Deppert	334
The P Genes of Human Parainfluenza Virus Type I Clinical Isolates Are Polycistronic and Microheterogeneous	Ultan F. Power, Kevin W. Ryan, and Allen Portner	340
Defective Viral Particles in Caprine Arthritis Encephalitis Virus Infection	Arnona Gazit, Ronit Sarid, Pnina Mashiah, Denis Archambault, John E. Dahlberg, Steven R. Tronick, and Abraham Yaniv	344
A 44,000 Glycoprotein Is Involved in the Attachment of Echovirus-11 onto Susceptible Cells	Andre D. Mbida, Bruno Pozzetto, Odette G. Gaudin, Florence Grattard, Jean-Claude Le Bihan, Yves Akono, and Alain Ros	350
Functional Classification of Simian Immunodeficiency Virus Isolated from a Chimpanzee by Transactivators	Jun-ichi Sakuragi, Hiroyuki Sakai, Sayuri Sakur- agi, Riri Shibata, Simon Wain-Hobson, Ma- sanori Hayami, and Akio Adachi	354
Indian Hepatitis E Virus Shows a Major Deletion in the Small Open Reading Frame	Ratna Ray, Shahid Jameel, Venkatasamy Manivel, and Ranjit Ray	359
Primer Design for Specific Diagnosis by PCR of Highly Variable RNA Viruses: Typing of Foot-and-Mouth Disease Virus	Ana Rodríguez, Encarnación Martínez-Salas, Joaquín Dopazo, Mercedes Dávila, Juan Carlos Sáiz, and Francisco Sobrino	363
Characterization of P30, a Highly Antigenic Membrane and Secreted Protein of African Swine Fever Virus	Claudio L. Afonso, Carlos Alcaraz, Alejandro Brun, Michael D. Sussman, Dale V. Onisk, José M. Escribano, and Daniel L. Rock	368

Envelope of Human Immunodeficiency Virus Demon- strated by FACS Analysis	and Erik De Clercq	374
The Herpes Simplex Virus Immediate Early Protein ICP27 Encodes a Potential Metal Binding Domain and Binds Zinc in Vitro	Patrick J. Vaughan, Kelly J. Thibault, Mary Ann Hardwicke, and Rozanne M. Sandri-Goldin	377
Differential Accumulation of Herpes Simplex Virus Type I Latency-Associated Transcripts in Sensory and Auto- nomic Ganglia	Eyvind Rødahl and Jack G. Stevens	385
RNA Recombination in the Genome of Barley Stripe Mosaic Virus	M. C. Edwards, I. T. D. Petty, and A. O. Jackson	389
Maturation of Mouse Mammary Tumor Virus Envelope Protein Is Blocked by a Specific Point Mutation	Robert M. Bedgood, Lauren D. Snider, and Michael R. Stallcup	393
Modulation of the Frequency of Human Cytomegalovirus- Induced Chromosome Aberrations by Camptothecin	Cheng Zong Deng, Sazaly AbuBakar, Michael P. Fons, Istvan Boldogh, and Thomas Albrecht	397
Erratum Volume 186, Number 2 (1992): M. Bremont, P. Juste-Lesage, Cohen, "Sequences of the Four Larger Proteins of a Pore Equivalent Group A Rotavirus Proteins," pp. 684–692	cine Group C Rotavirus and Comparison with the	402
Announcements		403
Author Index for Volume 189, Number 1		404
Author index for volume 109, Number 1		404
Number 2, Au	igust 1992	
Conte	nts	
Sequence and Transcript Analysis of the Bovine Herpesvirus 1 Thymidine Kinase Locus	Leonard J. Bello, J. Charles Whitbeck, and William C. Lawrence	407
Correlation of RNA Secondary Structure and Attenuation of Sabin Vaccine Strains of Poliovirus in Tissue Culture	A. J. Macadam, G. Ferguson, J. Burlison, D. Stone, R. Skuce, J. W. Almond, and P. D. Minor	415
Rotavirus VP6 Modified for Expression on the Plasma Membrane Forms Arrays and Exhibits Enhanced Immu- nogenicity	David A. Reddy, Cornelia C. Bergmann, Janice C. Meyer, John Berriman, Gerald W. Both, Bar- bara E. H. Coupar, David B. Boyle, Marion E. Andrew, and A. Richard Bellamy	423
Transcriptional Activation of the Tat-Defective Human Immunodeficiency Virus Type-1 Provirus: Effect of Interferon	Waldemar Popik and Paula M. Pitha	435
Increased E6/E7 Transcription in HPV 18-Immortalized Human Keratinocytes Results from Inactivation of E2 and Additional Cellular Events	Bi-Ching Sang and Miguel S. Barbosa	448
Parvovirus B19 Replication in Human Umbilical Cord Blood		

Nuclear and Nucleolar Targeting Signals of Semliki Forest Virus Nonstructural Protein nsP2	Marja Rikkonen, Johan Peränen, and Leevi Kääriäinen	462
Bacteriophage T4 Gene 21 Encodes Two Proteins Essential for Phage Maturation	Edith Hintermann and Andreas Kuhn	474
Localization of the Virus Neutralizing and Hemagglutinin Epitopes of E1 Glycoprotein of Rubella Virus	Helena Chaye, Pele Chong, Brian Tripet, Brad Brush, and Shirley Gillam	483
Carcinogen-Induced Activation of SV40 Gene Expression in a Semi-permissive Environment	Mirit I. Aladjem and Sara Lavi	493
Characterization of a Stable Eukaryotic Cell Line Expressing the Rous Sarcoma Virus Integrase	Steven R. Mumm, Paul J. Hippenmeyer, and Duane P. Grandgenett	500
The Complete Nucleotide Sequence of Cell Fusing Agent (CFA): Homology between the Nonstructural Proteins Encoded by CFA and the Nonstructural Proteins Encoded by Arthropod-Borne Flaviviruses	Helen Cammisa-Parks, Laura A. Cisar, Arlene Kane, and Victor Stollar	511
Proton Nuclear Magnetic Resonance Studies of the Binding of Sialosides to Intact Influenza Virus	John E. Hanson, Nicholas K. Sauter, John J. Skehel, and Don C. Wiley	525
Analysis of a Human Immunodeficiency Virus Type 1 Isolate Carrying a Truncated Transmembrane Glycoprotein	Hiroyuki Shimizu, Futoshi Hasebe, Hideaki Tsu- chie, Shigeru Morikawa, Hiroshi Ushijima, and Takashi Kitamura	534
Genetic Analysis of an NTP-Binding Motif in Poliovirus Polypeptide 2C	Caroline Mirzayan and Eckard Wimmer	547
Small Deletion in v-src SH3 Domain of a Transformation Defective Mutant of Rous Sarcoma Virus Restores Wild Type Transforming Properties	Philippe Dezélée, Jean Vianney Barnier, Annie Hampe, Danielle Laugier, Maria Marx, Fran- cis Galibert, and Georges Calothy	556
Temperature-Sensitive Polioviruses Containing Mutations in RNA Polymerase	Cara Carthel Burns, Oliver C. Richards, and Ellie Ehrenfeld	568
Monoclonal Antibodies Recognizing Normal and Retrovirus-Transformed Chicken Hematopoietic Cells	Juinn-Lin Liu, Paul A. Klein, M. Giovannella Moscovici, and Carlo Moscovici	583
Definition of Linear Antigenic Regions of the HPV16 L1 Capsid Protein Using Synthetic Virion-Like Particles	Jian Zhou, Xiao-Yi Sun, Huw Davies, Lionel Crawford, David Park, and Ian H. Frazer	592
Characterization of the Stage(s) in the Virus Replication Cycle at Which the Host-Cell Specificity of the Feline Parvovirus Subgroup Is Regulated in Canine Cells	Motohiro Horiuchi, Naotaka Ishiguro, Hitoshi Goto, and Morikazu Shinagawa	600
Molecular Analysis of a Resistance-Breaking Strain of Potato Virus X	Tony Kavanagh, Matthew Goulden, Simon Santa Cruz, Sean Chapman, Ian Barker, and David Baulcombe	609
The Role of the <i>tnv</i> Protein and <i>tnv</i> RNA Splicing Signals in Replication of HIV-1 IIIB Isolates	Heinrich G. Göttlinger, Tatyana Dorfman, Eric A. Cohen, and William A. Haseltine	618
An <i>in Vivo</i> Study of a Glycoprotein gIII-Negative Bovine Herpesvirus 1 (BHV-1) Mutant Expressing β -galactosidase: Evaluation of the Role of gIII in Virus Infectivity and Its	Xiaoping Liang, Lorne A. Babiuk, and Tim J. Zamb	629

Use as a Vector for Mucosal Immunization

Deoxyuridylate-Hydroxymethylase of Bacteriophage SPO1	Kai Wilhelm and Wolfgang Rüger	640
The Sendai Virus Nonstructural C Proteins Specifically Inhibit Viral mRNA Synthesis	Joseph Curran, Jean-Baptiste Marq, and Daniel Kolakofsky	647
Complete Nucleotide Sequence of the Marek's Disease Virus ICP4 Gene	Amy S. Anderson, Andrea Francesconi, and Robin W. Morgan	657
Peanut Stunt Virus Satellite RNA: Analysis of Sequences that Affect Symptom Attenuation in Tobacco	R. A. Naidu, G. B. Collins, and S. A. Ghabrial	668
The Vaccinia Virus K2L Gene Encodes a Serine Protease Inhibitor Which Inhibits Cell-Cell Fusion	Jian Zhou, Xiao Yi Sun, Germain J. P. Fernando, and Ian H. Frazer	678
Transformation by Human Papillomavirus Type 16 (HPV16) DNA but Not HPV6b DNA Is Enhanced by Addition of the Human Cytomegalovirus Enhancer	Don M. Morgan, Gene Pecoraro, Irene Rosenberg, and Vittorio Defendi	687
Factors Underlying Spontaneous Inactivation and Susceptibility to Neutralization of Human Immunodeficiency Virus	Scott P. Layne, Michael J. Merges, Micah Dembo, John L. Spouge, Shawn R. Conley, John P. Moore, Jawahar L. Raina, Herbert Renz, Hans R. Gelderblom, and Peter L. Nara	695
Stalling by RNA Polymerase II in the Polyomavirus Intergenic Region Is Dependent on Functional Large T Antigen	John Bertin, Noelle-Ann Sunstrom, Poonam Jain, and Nicholas H. Acheson	715
Untranslatable Transcripts of the Tobacco Etch Virus Coat Protein Gene Sequence Can Interfere with Tobacco Etch Virus Replication in Transgenic Plants and Proto- plasts	John A. Lindbo and William G. Dougherty	725
Short Commu	inications	
Identification and Subcellular Localization of the Q Gene Product of Visna Virus	G. Audoly, N. Sauze, G. Harkiss, C. Vitu, P. Russo, G. Querat, M. Suzan, and R. Vigne	734
Selection of Antigenically Distinct Variants of Influenza C Viruses by the Host Cell	Yoriko Umetsu, Kanetsu Sugawara, Hidekazu Nishimura, Seiji Hongo, Masami Matsuzaki, Fumio Kitame, and Kiyoto Nakamura	740
Detection of Enhancer Repeats in the Long Terminal Repeats of Feline Leukemia Viruses from Cats with Spontaneous Neoplastic and Nonneoplastic Diseases	Yasunobu Matsumoto, Yasuyuki Momoi, Toshi- hiro Watari, Ryo Goitsuka, Hajime Tsuji- moto, and Atsuhiko Hasegawa	745
HSV-1-Inducible Proteins Bind to NF-&B-like Sites in the HSV-1 Genome	Bing L. Rong, Towia A. Libermann, Keiko Kogawa, Sankar Ghosh, Li-Xian Cao, Deborah Pavan-Langston, and Edmund C. Dunkel	750
The Expressed VP4 Protein of Bluetongue Virus Binds GTP and Is the Candidate Guanylyl Transferase of the Virus	H. le Blois, T. French, P. P. C. Mertens, J. N. Burroughs, and P. Roy	757
Adenovirus Helper Function Activity of Simian Virus 40 T Antigen Mutants	Catherine V. Heath, Ellen Fanning, and Charles N. Cole	762
Baculovirus-Expressed Rabies Virus M1 Protein Is Not Phosphorylated: It Forms Multiple Complexes with Ex- pressed Rabies N Protein	Christophe Préhaud, Karen Nel, and David H. L. Bishop	766

Proteolysis in the Maturation of Avian Retroviruses Does Not Require Calcium	Volker M. Vogt, Haim Burstein, and Anna Marie Skalka	771
In Vivo Transfection of Bovine Leukemia Provirus into Sheep	Luc Willems, Daniel Portetelle, Pierre Kerkhofs, Gao Chen, Arsène Burny, Marc Mammer- ickx, and Richard Kettmann	775
A Single Amino Acid Substitution in the Hemagglutinin- Neuraminidase of Newcastle Disease Virus Results in a Protein Deficient in Both Functions	John P. Sheehan and Ronald M. Iorio	778
Epitope Mapping and Conformational Analysis of SV40 T- Antigen Deletion Mutants	Earl T. Sawai and Janet S. Butel	782
Identification of a Generalised Packaging Sequence for D- Type Retroviruses and Generation of a D-Type Retro- viral Vector	Richard G. Vile, Munaf Ali, Eric Hunter, and Myra O. McClure	786
Neuraminidase Treatment of Avian Infectious Bronchitis Coronavirus Reveals a Hemagglutinating Activity That is Dependent on Sialic Acid-Containing Receptors on Erythrocytes	Beate Schultze, David Cavanagh, and Georg Herrler	792
Comparison of the S RNA Segments and Nucleoprotein Sequences of Crimean-Congo Hemorrhagic Fever, Hazara, and Dugbe Viruses	Anthony C. Marriott and Patricia A. Nuttall	795
Abutilon Mosaic Geminivirus Double-Stranded DNA Is Packed into Minichromosomes	Marcel Pilartz and Holger Jeske	800
Selective Inhibition of the 3'-to-5' Exonuclease Activity Associated with Epstein–Barr Virus DNA Polymerase by Ribonucleoside 5'-Monophosphates	Tatsuya Tsurumi	803
Characterization of Beet Curly Top Virus Subgenomic DNA Localizes Sequences Required for Replication	Thomas Frischmuth and John Stanley	808
Constitutive Synthesis of Polyoma Antisense RNA Renders Cells Immune to Virus Infection	L. Ottavio, O. Sthandier, L. Ricci, C. Passananti, and P. Amati	812
Mutagenesis of a Hexanucleotide Sequence Conserved in Potexvirus RNAs	K. Andrew White, J. B. Bancroft, and George A. Mackie	817
The Use of Additive and Subtractive Approaches to Examine the Nuclear Localization Sequence of the Polyomavirus Major Capsid Protein VP1	Deching Chang, John I. Haynes II, John N. Brady, and Richard A. Consigli	821
Calcium Chelation Induces a Conformational Change in Re- combinant Herpes Simplex Virus-1-Expressed Rota- virus VP7	Philip R. Dormitzer and Harry B. Greenberg	828
A Bovine Rotavirus Serotype 1: Serologic Characterization of the Virus and Nucleotide Sequence Determination of the Structural Glycoprotein VP7 Gene	Jorge Blackhall, Rodolfo Bellinzoni, Nora Mat- tion, Mary K. Estes, José L. La Torre, and Göran Magnusson	833
Author Index for Volume 189		838
Subject Index for Volume 189		840